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whether the word is singular or plural. We will distinguish *crochet* with *et*, *crocheted* with *ete*, *pique* (the cloth) with *ue*, *croquet* with *uet*, and *roqueted* with *uete*. We must not forget that *Duchesse* requires *es-e*, *Duquesne ues-e*, *Niquée uee*, *Torquay uay*, and *Queyrac uey*. *Chassez* ("sashay") completes our French list with *ez*.

We spell *seine* with *ei-e*, *eigne* with *eig-e*, and *eyot* (ait) with *eyo*. We must remember *rhaphe* with *ha*, *Thame* in England with *ha-e*, *heir* with *hei*, and *renaique* with *ai-ue*. As an oddity we find *quegh*, which ought to be obsolete, troubled with *egh* or *aich* (quaich), quoits ("quoits" in the country) has *oi*. *Theys* (tay) goes with *heys*, and old Mr. Trew (Tray) is ever faithful to *ew* in his name.

But why prolong this exhibit? The reader is already exhausted, and the chapter is not yet complete. Suffice it to say there are nearly one hundred different ways of representing the long sound of *a*, many of them in patronymics and names of places that need to be pronounced by English-speaking people. For other vowel sounds there is an equally extensive variety of representatives.

All this would, perforce, show the necessity of a reform in spelling—phonetic reform, if need be; but, on the other hand, the letters of a word are the earmarks, if you please, that indicate ownership—that show the philologic derivation and history of a word. Phonetic reform could never touch the majority of irregularities in spelling and retain any intelligence in the word. Therefore, with all its faults, our heterographic orthography is preferable to any homographic orthography that can be devised with our present alphabet.

What we can do is this: Drop some of our redundant letters as *me* from programme, *ue* from catalogue, etc.; final *e* from strychnine, etc., when the preceding vowel is short; *a* from plead (pled), past tense and pp., and similar words; change *ph* to *f*, as in sulfur. There is plenty of scope for good work in this direction, and such work will finally become permanent. We would become accustomed to these words, as to dock-tailed sheep, and prefer them.

B. B. SMYTH.

Topeka, Kansas.

FOSSIL RESINS.

This book is the result of an attempt to collect the scattered notices of fossil resins, exclusive of those on amber. The work is of interest also on account of descriptions given of the insects found embedded in these long-preserved exudations from early vegetation.

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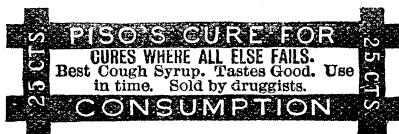
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FEIGNED DEATH IN SNAKES.

For a long time I have desired information from others about a common trick of the ordinary "blowing viper," or "spreadhead snake" (*Heterodon*, in several species). I have observed that such animals when much worried, or slightly hurt, will frequently feign death. This habit has doubtless been often reported before, but I do not recall having seen definite mention of it in print but once. Several months ago, some one writing about snakes in a daily newspaper, alluded to this matter, and gave, as an explanation, the off-hand statement that the snake became frightened and "fainted from fear." That this is not the explanation will, I think, appear from what I have noted about several cases that came under my own observation.

The first time I ever noticed this behavior on the part of a snake was when I was a child. At that time I was one day crossing a field accompanied by an old negro man and a small dog. The dog found a common black "spread-head," and, without actually taking hold of it, began to worry it by running around it, snapping at it and barking. Anxious to save my friend, the dog, from what I supposed was deadly peril, I struck the snake with the only weapon quickly available, a small whip I carried in my hand. The snake immediately ejected a toad it had recently swallowed, then appeared to bite itself in the side, and promptly turned on its back and stiffened (but did not become stretched straight out) and lay perfectly still. There was not even a wiggle in its tail when pinched. Believing, as I then did, that all snakes were venomous, I supposed this one had killed himself; and remarking that he "seemed dead enough," I was on the point of leaving him. But the old negro said, "Oh no! If you leave them when they bite themselves, then their mates come along and lick the bite, and they come to." So I mashed the snake's head in a way that no amount of licking would ever heal. The old man evidently knew, by some means, that snakes which appeared thus to commit suicide would recover, and knowing no real explanation of why they should be invented one. Therein he followed the example of more eminent men than himself.

Before I again noticed such action by a snake I had

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studied zoölogy a little and had learned that the spread-head was said to be non-venomous. Consequently when I next met one, and began to cultivate a closer acquaintance with him, and he seemed after a time to kill himself, I was much surprised, and began to investigate his mouth, to see if he did not have poison fangs after all. He, as they all do, had turned himself on his back and was lying rigid in that position. In the course of my investigation I turned him over, "right side up," again. He was playing dead so earnestly that he could not lie in so life-like a position, but immediately turned himself on his back again. Then, of course, I knew that a snake which was *too dead* to stay in the position in which I placed him, was *too alive* to be very badly hurt. I determined to watch him. Accordingly I removed him to a smooth, clear place and then withdrew to a little distance to quietly watch developments. In about fifteen minutes the snake cautiously raised his head and two or three inches of his body and looked around. If he saw me he failed to recognize me, and in a few seconds had turned himself over and was making off. When I advanced quickly towards him he redoubled his efforts to escape, but was easily captured. He did not, at that time, again "play possum."

Often since then I have watched them go through this pretended suicide. Usually when becoming active again, they behave like the one just described; but occasionally when they find themselves overtaken as they are making off, they will again at once feign death. Sometimes while "playing dead," if one is sharply pricked with a needle or otherwise acutely stimulated, he will promptly resume his interest in surrounding things and either show fight or try to escape.

Occasionally when I have spoken to friends about this matter and they have shown a disposition to regard my statements as "snake stories," in the popular sense of that expression, I have been fortunate enough to get hold of

a spread-head and show them what I had before described to them.

It is usually easy to provoke a *Heterodon, niger*, *H. platyrhinus*, or *H. sinus* into feigning death by striking him with small twigs or a good bunch of broom straw, or by a little brisk handling. I wish some one else would examine these snakes with reference to this habit and report his conclusions. I think "fainting from fear" is shown to be wrong by the snake's refusing to stay in any other position than "flat on his back."

Recently while conversing with a friend about this matter, he suggested that perhaps the rattlesnakes which are so often provoked into biting themselves and then seeming to die, were also acting a deceptive part in order to escape. This seems more probable as one noted experimenter, Dr. S. Weir Mitchell, says that the injection of rattlesnake's venom into the snake's own circulation does not appear to cause any special inconvenience to the snake.

I would be glad to get some further information on this subject.

J. W. KILPATRICK.

Fayette, Mo., Sept. 23, 1893.

ELECTRICAL COOKING.

THE elaborate argument of R. A. F., in a recent number of *Science*, in favor of the economy of cooking by electricity will hardly convince the practical man. While witnessing the interesting exhibit of electrical heating apparatus at the World's Fair I asked the attendant in charge "What current is required for your flatirons?" "Four amperes and one hundred volts," he replied. "Eight cents an hour," I said to myself, "at ordinary lighting prices. That is far more than the household coal costs for all purposes." Even at half the lighting rates such heating costs too much for ordinary use.

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